WASHING MACHINE
TOP-LOADING TYPE

Basic Name : WA45H7200AW
(WA-7000HA PJT)
Basic Code : WA45H7200AW/A2
Model Name : WA45H7200AP
(WA-7000HA PJT)
Model Code : WA45H7200AP/A2

SERVICE *Manual*

WASHING MACHINE (TOP-LOADING)

CONTENTS

1. Safety Instructions
2. Features and Specifications
3. Disassembly and Reassembly
4. Troubleshooting
5. PCB Diagram
6. Wiring Diagram
7. Reference

CONTENTS

1. Safety instructions 1
1-1. Safety instructions for service engineers 1

2. Features and Specifications 5
2-1. Features 5
2-2. Specifications 6
2-3. Detail features 7
2-4. Options specifications 8

3. Disassembly and Reassembly 9
3-1. Tools for disassembly and reassembly 9
3-2. Standard disassembly drawings 10

4. Troubleshooting 19
4-1. Error modes 19
4-2. Corrective actions for each error code 21
4-3. The installation for leveling. 26

5. PCB diagram 27
5-1. Main PCB 27
5-2. Detailed Manual for Connector and Relay Terminal Part - Main PCB 28
5-3. Sub PCB 29
5-4. Detailed Manual for Connector Terminal Part - Sub PCB 30

6. Wiring diagram 31
6-1. Wiring diagram 31

7. Reference 32
7-1. Model Number Naming Rules 32

1. SAFETY INSTRUCTIONS

1-1. SAFETY INSTRUCTIONS FOR SERVICE ENGINEERS

► Be sure to observe the following instructions to operate the product correctly and safely to prevent possible accidents and hazards while servicing.

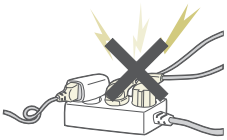
► Two types of safety symbols, Warning and Caution, are used in the safety instructions.

⚠ WARNING	**Hazards or unsafe practices that may result in severe personal injury or death.**
⚠ CAUTION	**Hazards or unsafe practices that may result in minor personal injury or property damage.**

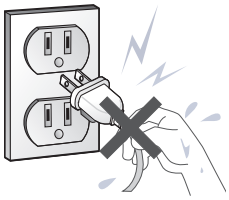
⚠ WARNING BEFORE SERVICING

- (When servicing electrical parts or harnesses) Make sure to disconnect the power plug before servicing.
  - Failing to do so may result in a risk of electric shock.

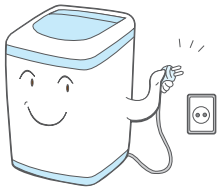
- Do not allow consumers to connect several appliances to a single power outlet at the same time.
  - There is a risk of fire due to overheating.



- When removing the power cord, make sure to hold the power plug when pulling the plug from the outlet.
  - Failing to do so may damage the plug and result in fire or electric shock.



- When the washing machine is not being used, make sure to disconnect the power plug from the power outlet.
  - Failing to do so may result in electric shock or fire due to lightning.



- Do not place or use gasoline, thinners, alcohol, or other flammable or explosive substances near the washing machine.
  - There is a risk of explosion and fire caused from electric sparks.

⚠ WARNING WHILE SERVICING

- Check if the power plug and outlet are damaged, flattened, cut or otherwise degraded.
  - ▸ If faulty, replace it immediately.
    Failing to do so may result in electric shock or fire.

- Completely remove any dust or foreign material from the housing, wiring and connection parts.
  - ▸ This will prevent a risk of fire due to tracking and electrical hazard..

- When connecting wires, make sure to connect them using the relevant connectors and check that they are completely properly.
  - ▸ If tape is used instead of the connectors, it may cause fire due to tracking.

- Make sure to discharge the PBA power terminals before starting the service.
  - ▸ Failing to do so may result in a high voltage electric shock.

- When replacing the heater, make sure to fasten the nut after ensuring that it is inserted into the bracket-heater.
  - ▸ If not inserted into the bracket-heater, it touches the drum and causes noise and electric leakage.

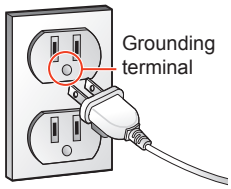
⚠ WARNING AFTER SERVICING

- Check the wiring.
  - ▸ Ensure that no wire touches a rotating part or a sharpened part of the electrical harness.

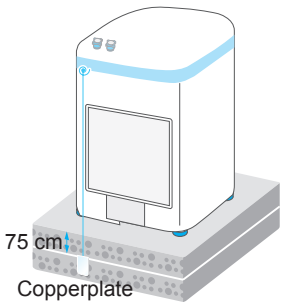
- Check for any water leakage.
  - ▸ Perform a test run for the washing machine using the standard course and check whether there is any water leakage through the floor section or the pipes.

- Do not allow consumers to repair or service any part of the washing machine themselves.
  - ▸ This may result in personal injury and shorten the product lifetime.

- If it seems that grounding is needed due to water or moisture, make sure to run grounding wires.
  (Check the grounding of the power outlet, and additionally ground it to a metallic water pipe.)
  - ▸ Failing to do so may result in electric shock due to electric leakage.



  [Running a grounding wire]
  - Twist a grounding wire (copper wire) two or three times around the tap.
  - If you connect the grounding wire to a copperplate, bury it 75 cm under the earth in a place with a lot of moisture.
    - ⚠ Do not connect the grounding wire to a gas pipe, plastic water pipe or telephone wire. There is a risk of electric shock or explosion.

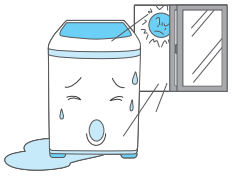


⚠ CAUTION BEFORE SERVICING

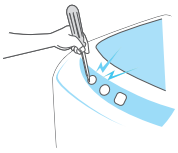
- Do not sprinkle water onto the washing machine directly when cleaning it.
  - This may result in electric shock or fire, and may shorten the product lifetime.

- Do not place any containers with water on the washing machine.
  - If the water is spilled, it may result in electric shock or fire. This will also shorten the product lifetime.

- Do not install the washing machine in a location exposed to snow or rain.
  - This may result in electric shock or fire, and shorten the product lifetime.



- Do not press a control button using a sharp tool or object.
  - This may result in electric shock or damage to the product.



⚠ CAUTION WHILE SERVICING

- When wiring a harness, make sure to seal it completely so no liquid can enter.
  - Make sure that they do not break when force is exerted.

- Check if there is any residue that shows that liquid entered the electric parts or harnesses.
  - If any liquid has entered into a part, replace it or completely remove any remaining moisture from it.

- If you need to place the washing machine on its back for servicing purposes, place a support(s) on the floor and lay it down carefully so its side is on the floor.
  - Do not lay it down on its front. This may result in the inside tub damaging parts.

⚠ CAUTION AFTER SERVICING

- Check the assembled status of the parts.
  - Now is a good time to inspect your work. Review all connections and wiring, including mounting hardware.

- Check the insulation resistance.
  - Disconnect the power cord from the power outlet and measure the insulation resistance between the power plug and the grounding wire of the washing machine. The value must be greater than 10MΩ when measured with a 500V DC Megger

- Check whether the washing machine is level the floor with respect to the original position of the washing machine prior to service.
  By doing this now will reduce for the need of customer dissatisfaction and redo call.
  - Vibrations can shorten the lifetime of the product.

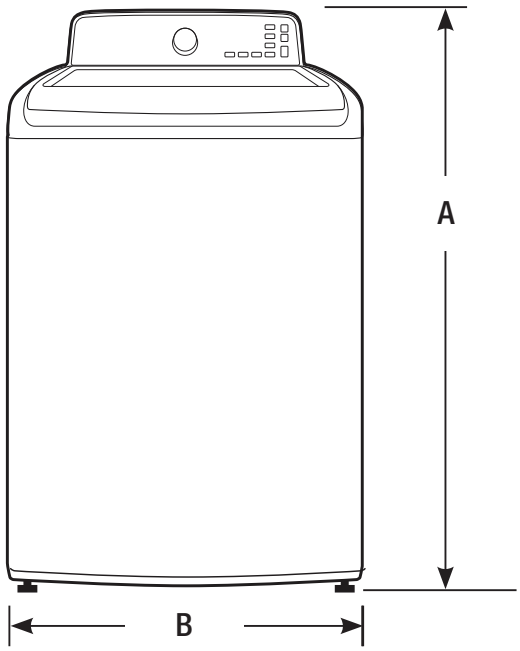
2. FEATURES AND SPECIFICATIONS

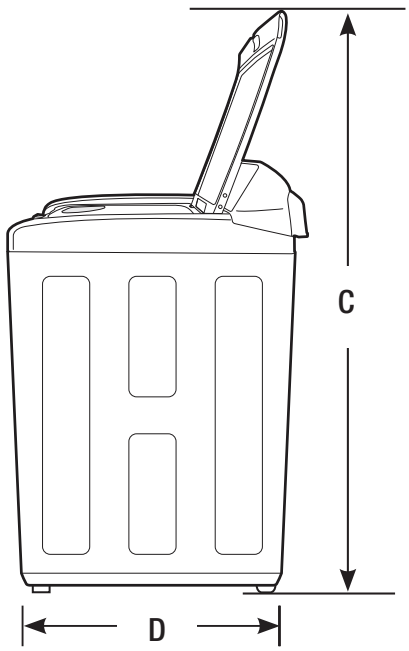
2-1. FEATURES

Features	Description
The Great Capacity	• Even bulky garments and blankets get super clean. The Great capacity leaves enough room for a more thorough, cleaner wash.
AquaJet™	• AquaJet™ washes loads gently and more thoroughly than conventional top loaders. Sprayed water allows detergent to distribute evenly and penetrate fabrics faster and deeper. AquaJet™ delivers improved cleanliness and advanced fabric care.
DD Motor	• The power to handle anything! Our direct-drive inverter motor delivers power right to the washer tub from a variable speed, reversible motor. Beltless direct-drive motor generates a higher spin speed for more effective, quiet operation. The washer also has fewer moving parts, meaning fewer repairs.
Mist Shower	• A separate nozzle has been adopted that sprays water equally so that the rinse cycle is effective even with a small amount of water.
VRT® (Vibration Reduction Technology)	• This Samsung washer performs smoothly at top spin speeds, minimizing noise and vibration.
Self Clean (Tub Cleaning cycle)	• Clean your drum with one button! This Pure Cycle is specially designed to remove detergent residue & dirt bulid up in the tub, without the need for special chemical detergents.
EZ-Closed Lid	• The door is designed to close softly and prevent users from being injured
Smart Care	• Samsung's Smart Care, an automatic error-monitoring system, detects and diagnoses problems at an early stage and provides quick and easy solutions.

2-2. SPECIFICATIONS

TYPE		TOP LOADING WASHER	
DIMENSION (Inches / cm)	A. Height	43.9″ / 111.5cm	
	B. Width	27.0″ / 68.6cm	
	C. Height with Door open	58.1″ / 147.6cm	
	D. Depth	29.3″ / 74.4cm	
WATER PRESSURE		20~116psi (137~800kPa)	
WEIGHT		57kg (125.7 lb)	
CAPACITY		4.5cu.ft	
POWER CONSUMPTION	WASHING	120V	700W
	SPIN	120V	400W
	DRAIN	120V	80W
SPIN REVOLUTION		1,000rpm	

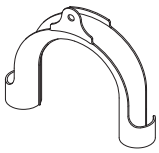
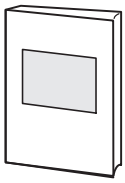
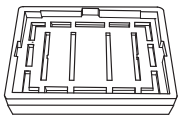




2-3. DETAIL FEATURES

Grade		WA45H7200AP/A2	WA45H7200AW/A2
Image			
Main Spec.	Capacity(DOE)	4.5	4.5
	Aqua Jet™	Yes	Yes
	Smart Care	Yes	Yes
	Diamond interior drum	Yes	Yes
	Self Clean	Yes	Yes
	Washing Cycles	11	11
	Internal Heater	-	-
	VRT®	Yes	Yes
	Pulsator material	STS	STS
	Max rpm (Max spin speed)	1,000	1,000
	Mist Shower	Yes	Yes
	Motor	DD	DD
Design	Color	Ultra Inox	Neat White
	Main display	18:88	18:88
	Jog Dial	Chrome	Chrome
	LED color	Ice-blue	Ice-blue
	Door Lid TC	Tempered Tinted glass	Tempered Tinted glass
	Easy door	Yes	Yes
	Top Cover	Steel(EGI) + Painting	Steel(EGI) + Painting
Energy	MEF (cf/kWh/cycle)	2.45	2.45
	WF (gal/cycle/cf)	3.55	3.55
	EnergyGuide (kWh/year)	169	169

2-4. OPTIONS SPECIFICATIONS

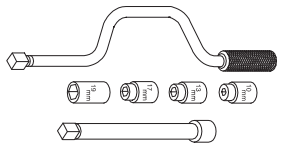
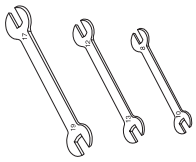
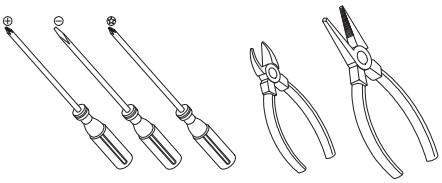
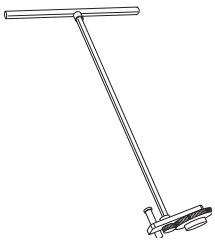
Item	Item Name	Code No.	Remark
	HOSE-HANGER	DC61-00224A	Default
	MANUAL-BOOK	DC68-03133P	Default
	CABLE TIE	6501-000121	Default
	CAP W.V	DC61-10449Q	Default
	ASSY-LEG SUPPORT	DC97-14095A	Service

Note

- Customer can purchase Water supply, drain hoses and assy leg support from a service center.

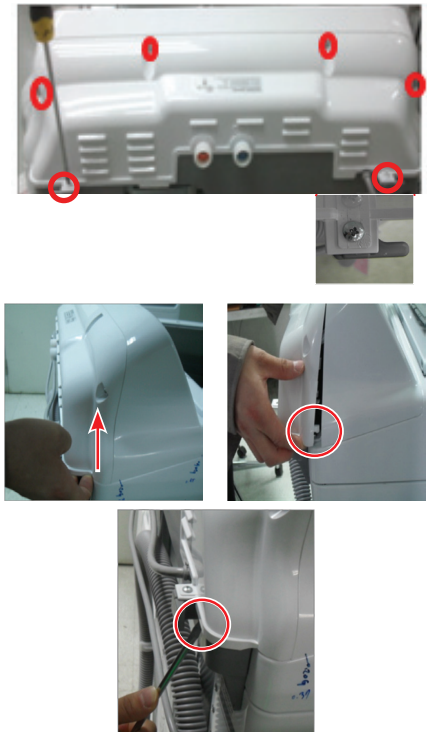
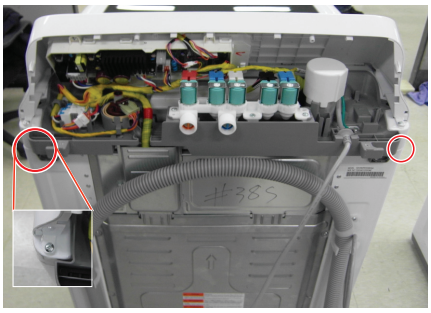
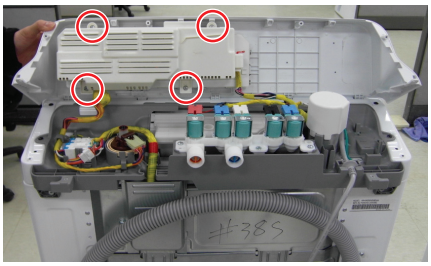
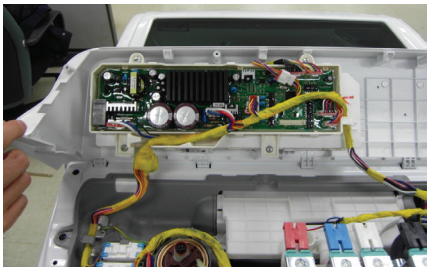
3. DISASSEMBLY AND REASSEMBLY

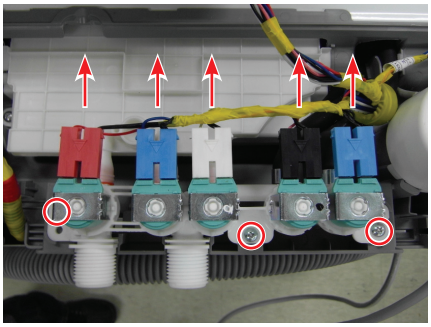
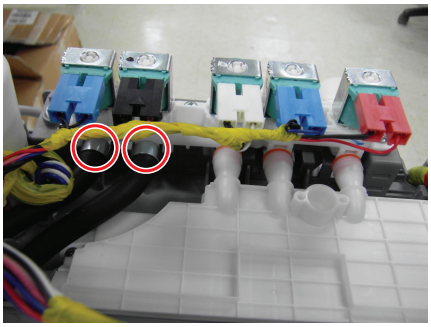
3-1. TOOLS FOR DISASSEMBLY AND REASSEMBLY

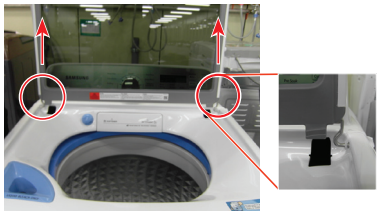
Tool		Type	Remarks
	Box driver	10mm 17mm	Tub(16), Fixer screw(5), Motor(1), Balance(5) Damper(2), Damper(friction 1)
	Double-ended spanner	10mm 17mm	Replaced by box driver Leg
	Vice pliers		A Tool for protecting empty turning of bolt or abrasion from using box driver For disassembly of Spin drum
	Others (screwdriver, nipper, long nose pliers)		Common tools for servicing
	JIG for the ASSY SPIN BASKET		

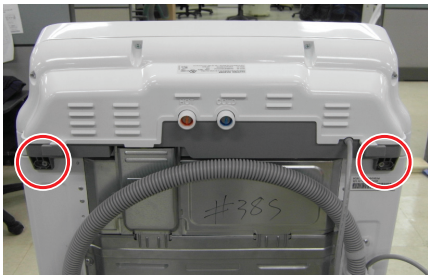
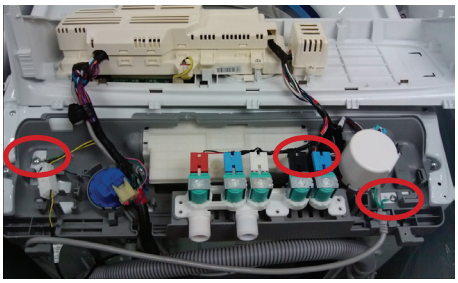
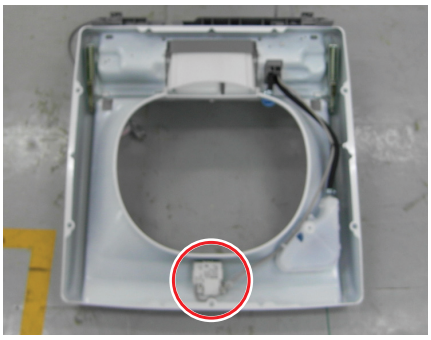
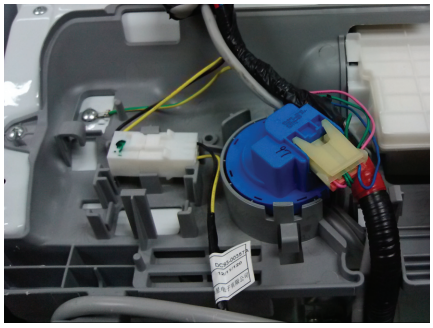
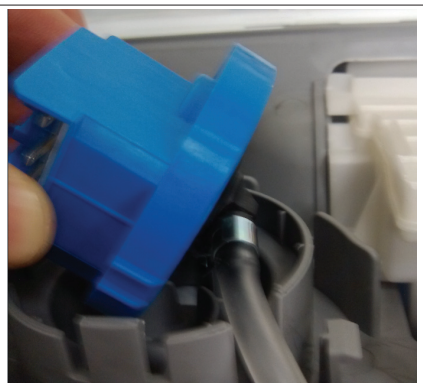
3-2. STANDARD DISASSEMBLY DRAWINGS

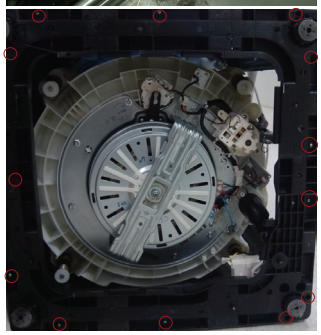
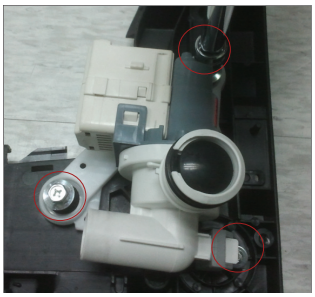
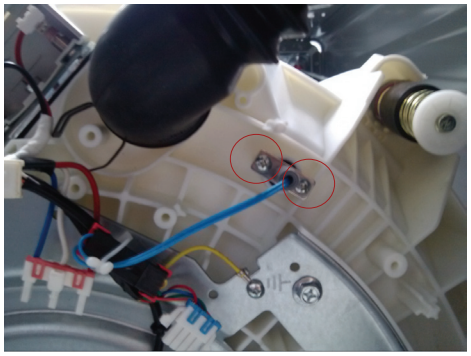
► This is a standard disassembly diagram and may differ from the actual product.
Use this material as a reference when disassembling and reassembling the product.

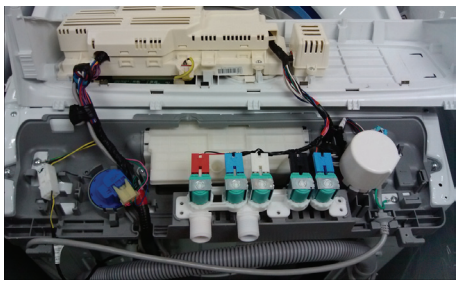
Part	Figure	Description
Sub and Main PCB Assembly		1. Remove the 6 screws holding the control panel assembly. 2. Separate the both hooks. (Left and Right) 3. Separate the cover panel upward. If it is difficult to disassemble, use the (-) driver to disassemble hooks. (Be careful damage of hooks.)
		4. Remove the 2 screws holding the control panel assembly and turn the panel over.
		5. Pull the Encoder-Knob to separate it and then remove the 4 fixing screws. When reassembling the PCB, take care that you do not damage the control-panel fixing hook. After replacing the sub PCB, check the key operation.
		6. Separate the cover pcb(m) and the wires connected to the main PBA. After reassembling the housing, check if the wires are properly connected. When disassembling and reassembling the housing, take care that you do not damage the part.

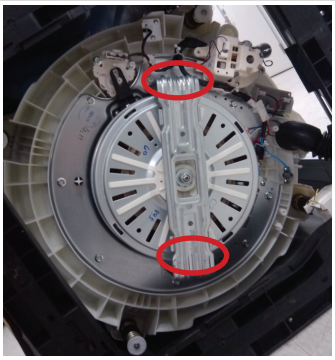
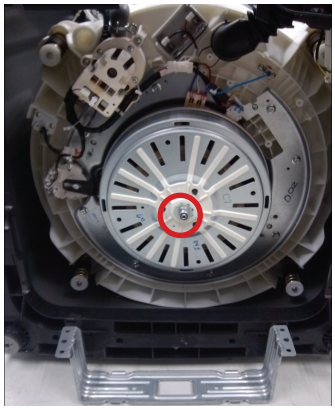
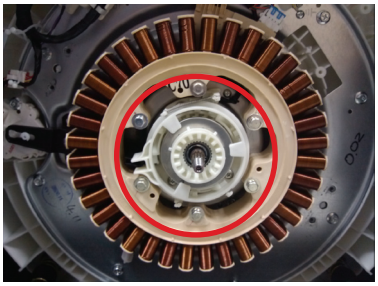
Part	Figure	Description
Water Valve		1. After separating the control panel, separate the water-valve housing. 2. Remove the 3 fixing screws.
		3. Remove the wire-harness and release the 2 clamps connecting the hoses. When releasing the clamps, take care that you do not tear the hoses.

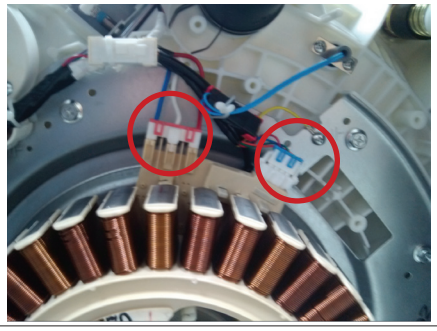
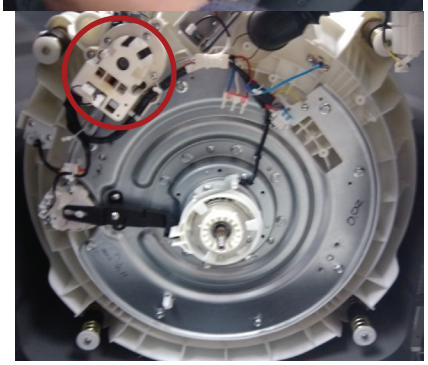
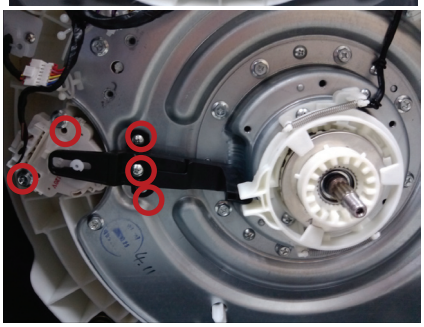
Part	Figure	Description
Door Assembly	 	1. Remove the 2 inlay tapes. 2. Remove the 4 screws holding the door lid TC and separate the door.

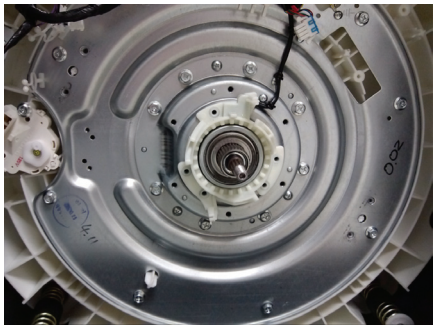
Part	Figure	Description
Top Cover Assembly / Door Switch		1. Remove the 2 screws from the cover plate. 2. Separate the control panel assembly.
		3. Separate the Assy Valve Water, the main PBA, the Assy Sensor Pressure and the filter EMI housing. Separate the housing to prevent stress and damage to the wire-harness. 4. Separate the main wire harness, the pressure switch hose clip , Grounding screw . 5. Release the bleach hose clamp.
		6. Separate the top cover assembly by lifting and pushing ahead the top part of the assembly. 7. you can check the door switch If turn the Top cover upside down.
Sensor Pressure Switch		1. Disassemble the control panel assembly. 2. Separate the pressure switch housing.
		3. Before separating the hose, release the clip. When releasing the clip, take care that you do not tear the hose.

Part	Figure	Description
Drain-Pump	 	1. Separate the back cover 2. Separate 2 clamps. 3. Remove the 13 screws in base. 4. Remove the 3 screws 5 screws are separated by '+' shape hand driver.
Thermistor		1. Remove the 2 screws.

Part	Figure	Description
Clutch Assembly (continued)		1. Separate the top cover assembly by lifting and pushing ahead the top part of the assembly 2. Remove the 2 screws holding the panel control Separate all the wires connected to the housing.
		3. Remove the 4 screws fixing the tub-cover and separate the tub-cover.
		4. Separate the pulsator-cap by inserting the tip of a (-) screwdriver between the pulsator-cap and the pulsator and then lifting the screwdriver up (↑).
		5. Remove the bolt holding the pulsator with a 10mm wrench.

Part	Figure	Description
Clutch Assembly (continued)		6. Remove the shaft with the jig wrench. - Release the nut in a clockwise direction. - Fasten the nut in a counterclockwise direction.
		7. Place the main body so that the front frame faces upward and remove the 4 bolts holding the saddle with a 10mm wrench. When you place the washer on the floor, take care that you do not damage or scratch the product.
		8. Remove the bolt holding the DD-motor housing with a 17mm wrench and then remove the motor housing.
		9. Remove the 6 bolts holding the DD-motor with a 10mm wrench.

Part	Figure	Description
Clutch Assembly (continued)		10. Separate the 2 marked housings and then remove the DD-motor. 11. Press the hook to separate the housing.
	   	12. Separate the slide guide and the coupling by pulling them forward. Disassemble the coupling and the spring.

Part	Figure	Description
		13. Remove the all screws fixing the clutch assembly and then separate the clutch assembly.

Reassembly procedures are in the reverse order of dissasembly procedures.

4. TROUBLESHOOTING

4-1. ERROR MODES

► **This is a washer integrated error mode. For detailed information, refer to the general repair scripts.**

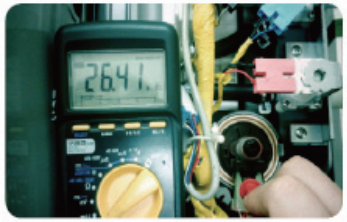
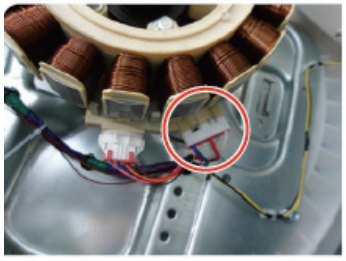
Error Type	For USA	Causes	Remarks
Water Level Sensor	1E	- The part of the hose where the water level sensor is located is damaged (punctured). - The hose is clogged with foreign material. - The hose is folded. - Too much lubricant has been applied to the insertion part of the air hose. - Hose engagement error. (disengaged) - Part fault. (Faulty internal soldering) - The water level sensor terminal is disengaged. - Main PBA fault.	
Motor Driving Error and Hall Sensor Error	3E	- The PBA connector terminal is not connected. - The motor spin net is not engaged. - The motor's internal coil is damaged. (short-circuited or cut) - The hall sensor terminal is not connected. - Foreign material (a screw) has entered the motor. - Motor overloaded due to too much laundry. (Non-sensing) - The motor hall sensor terminal is not connected. - PBA fault. - The motor driving error from the PBA is weak. Unstable relay operation, etc. - This occurs due to erroneous operating signals from the motor hall sensor. - The IPM terminal of the main PBA is not connected. - The DD motor cover is out of place. - The PCB housing terminal is not connected. - PBA fault. - DD motor fault.	This error occurs because of restrained revolutions. This error occurs when an interference is generated due to too much laundry, etc.
Water Supply Error	4E	- Foreign material is entering the water supply valve. - The water supply valve terminal is not connected. (Wire disconnected) - The warm water and rinse connectors are wrongly connected to each other. - This occurs if the PCB terminal from the drain hose to the detergent drawer is not connected. Check whether the transparent hose is folded or torn.	
	4E2	- The cold and warm water supply hoses are wrongly engaged into each other. - The temperature of the water supplied through the dry valve during a dry cycle is sensed as higher than 70 ˚C. - The water temperature is sensed as higher than 50 ˚C in the Wool or Lingerie courses.	The water supplied for 1 minute drying the drying cycle is 0.3 ~ 0.4 L.
Drain Error	5E	- The pump motor impeller is damaged internally. - The wrong voltage is supplied to the parts. - Part fault. - This occurs due to freezing in the winter season. - The drain hose is clogged. (Injection error, foreign material) - Clogged with foreign material. - The water pump terminal is not connected: rubber band, bills, cotton, hair pins, coins have collected inside the drain pump ASSY.	

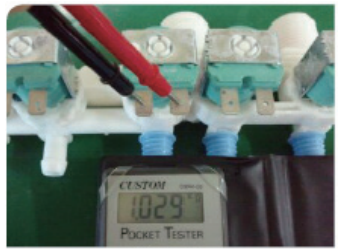
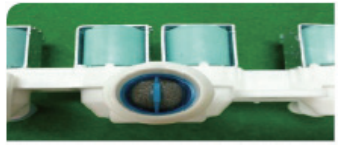
Error Type	For USA	Causes	Remarks
Power Error	9E1,9E2	- Check the consumer's power conditions. : Make sure to check the operating voltage. Connect a tester to the internal power terminals during the Boil or Dry operations and observe the washing machine's operation carefully. : Check the voltages. (An error occurs when under or over voltage is supplied.) : Check whether a plug receptacle is used. When the connecting wire is 1m, a momentary low voltage may drop up to 10 V - Main PBA fault (sometimes)	
Communication Error	AE	- The signals between the sub and main PBAs are not sensed because of commuication error. - Check the connector connections between the sub and main PBAs carefully. → Check for incorrect or loose connections, etc. - Remove the sub PBA C/Panel and check for any faulty soldering.	
	AE3	- The signals between The DR Module and main PBAs are not sensed because of commuication error. - Check The connector connections between The DR Module and main PBAs carefully. → Check for incorrect or loose connections, etc. - Remove The DR Module and Check for any faulty soldering.	
	AE4	- The signals between The WIFI Module and main PBAs are not sensed because of commuication error. - Check The connector connections between The WIFI Module and main PBAs carefully. → Check for incorrect or loose connections, etc. - Remove the WIFI Module and Check for any faulty soldering.	
	AE5	- The signals between The LCD Module and main PBAs are not sensed because of commuication error. - Check The connector connections between The LCD Module and main PBAs carefully. → Check for incorrect or loose connections, etc. - Remove The LCD Module and Check for any faulty soldering.	
	AE6	- The signals between the Inverter PBA and main PBA are not sensed because of communication error. - Check The connector connections between the Inverter PBA and main PBA carefully. → Check for incorrect or loose connections, etc. - Remove the Inverter PBA and Check for any faulty soldering.	
Switch Error (Main Relay Error)	bE2	- The Power button is pressed continually. (for more than 12 seconds). - A switch is jammed or stuck due to be pressed unevenly due to deformation of the control panel or button. - This error may occur when the screws that hold the sub PBA in place are tightened too much. - A button other than the Power button is continually pressed. (for more than 30 seconds). - Deformation of an internal plastic injection part. - A screw for assembling the sub PBA is tightened too much.	

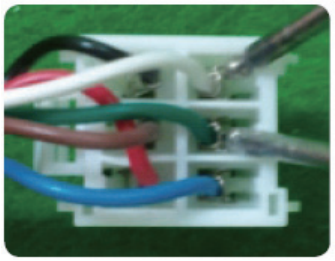
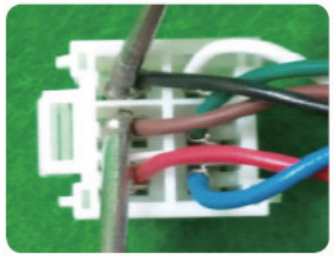
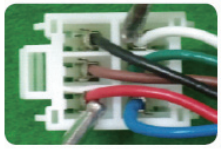
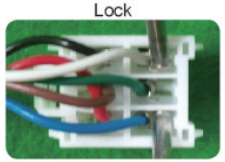
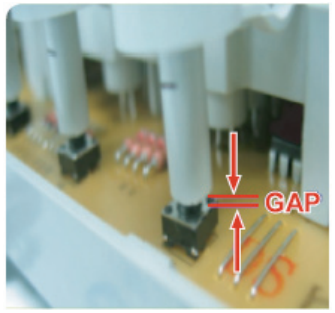
Error Type	For USA	Causes	Remarks
Door Error	dE	- A switch contact error because of a deformation of the door hook. - When the door is pulled by force.	When the door is not opened after the door open operation.
		- This occurs in the Boil wash because the door is pushed due to a pressure difference from internal temperature changes.	When the door is not locked after the door close operation.
	dE1	- The door lock switch terminal is connected incorrectly. - The door lock switch terminal is broken. - This occurs intermittently because of an electric wire leakage - Main PCB fault.	
Heater Error	HE,HE1	- The washing heater is short-circuited or has a wire disconnected. - The washing heater in the tub has an error. (Contact error, temperature sensor fault) - If the water level sensor operates without water because water is frozen or for any other reason and the temperature sensor engaged at the bottom to prevent overheating for the washing heater detects a temperature of 100 to 150 ˚C, the washing machine turns the input power off.	If the heater has no error, this occurs because of a PBA relay malfunction.
Water Leakage Error	LE	- Heater engagement fault. (out of place) - The air hose is out of place and water leakage occurs during the spin cycle. - The tub back at the safety bolts fixing part is broken. - Water leakage occurs at the front with foaming because of too much detergent. - Water leakage occurs because the connecting hose to the detergent drawer is connected incorrectly. - The drain pump filter cover is engaged incorrectly. - Water leakage occurs at the drain hose. - The duct condensing holding screws are worn. - The nozzle-diaphragm is engaged in the opposite direction or the rubber packaging is omitted. - Water leakage occurs because the screws that hold the tub back and front in place are fastened incorrectly. - The leakage sensor is faulty.	
Overflow Error	OE	- Water is supplied continually because the water level detection does not work. - Because the drain hose is clogged and there is an injection error (at a narrow section), the water level detection does not work and water is supplied continually. - Water is supplied continually because of freezing or because there is foreign material in the water supply valve. - This error may occur when the water level sensor is degraded.	This error occurs because the water level sensor terminal is out of place.
Temperature Sensor Error	tE1	- The washing heater sensor in the tub has an error. (Contact error or temperature sensor fault) - The connector is connected incorrectly or is disconnected. - If the water level sensor operates without water because the water is frozen or for any other reason and the temperature sensor engaged at the bottom to prevent overheating for the washing heater detects a temperature of 100 to 150 ˚C, the washing machine turns the input power off.	Heater sensor fault : When the connector is connected incorrectly or has a wire disconnected or contact error
Unbalance Error	UE	- As laundry causes this error, check the laundry. - Find the reason for the unbalance and solve it as directed in the user manual.	
Foaming Detected	Sud/SUdS	- This occurs when too much foaming is detected. It is also displayed while foaming is removed. When the removal is finished, the normal cycle proceeds. “Sud” or “SUdS” is displayed when too much foaming is detected and “End” is displayed when the removal of the foaming is finished. (This is one of the normal operations. It is an error for preventing non-sensing faults.)	

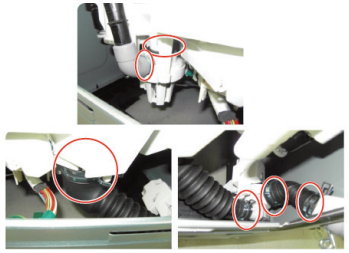
Error Type	For USA	Causes	Remarks
Mems PBA Error Detected	8E1	- Error detected in the Mems PBA or data error detected. Check the wire connections. Replace if necessary. 1. Check the wire connections. 2. Replace the Mems PBA. 3. Main PBA wire connection error or PBA's silver nano part malfunction. Replace if necessary.	
	8E2		
	8E		
System Error	SF1	- Micro Controller Operation Fail.	Replace Assy PCB.
	SF2		
	SF3		

► These are common troubleshooting procedures for each drum-type washer error mode. For detailed information, refer to the general repair scripts.

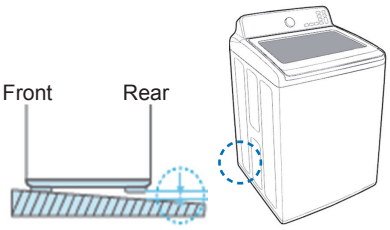
Symptom	Error Code	Countermeasure	Troubleshooting Procedure	Measurement Picture
Water Level Sensor	► 1E	Check if the water level sensor is defective. Check if the water level sensor terminal is properly connected. Check if the water level sensor hose is broken. This may occur when the main PCB is defective.	• Check the water level sensor terminal connections. • Check the part code of the water level sensor, because if an incorrect part is used, an abnormal operation may occur. (Abnormal operation) • If the water level sensor is defective, replace it. • If no problems were found for all of the procedures above, replace the PBA.	 ► Check the water level sensor frequency. 1. Check it after the water level sensor and the connector are connected. Checking Part : Blue Color Wire Oragne Color Wire 2. Frequency: Approx. 26.4 KHz without water (Min 25.9KHz)
Washing Motor Defect	► 3E	This may occur when the washing motor is defective. Check if the washing Motor Rotor/State is defective or not. This may occur when the main PCB is defective.	• Check the motor connector terminal connections. • Check if the Motor Cover State is damaged. • Check if the coil is broken due to moisture from any alien substance. • If the PBA control circuit is defective, replace the PBA.	 ► Check the motor Winding Coil • Plug out the connector and read resistances at any two of the three terminals on Motor : Should be 19.3Ω (at 25oC)

Error Type	Error Mode	Causes	Corrective Actions	Description of Photo
Water Supply Error	► 4E	This may occur when the water supply valve is defective. This may occur when the main PCB is defective. This may occur due to frozen water.	• If the water supply valve is broken, replace the valve. • Check if the water supply is blocked due to an alien substance in the valve or check if the water is supplied to the machine. If a problem is found, take the appropriate countermeasure. • Check if the water supply is blocked due to the water being frozen. • If the PBA Relay malfunctions, replace the PBA.	  1. Measure the resistance of the water supply valve. - Resistance : 0.9KΩ to 1.1KΩ between the terminals of the Water Supply Valve. 2. Check whether there is foreign material in the Water supply valve filter.
Drain Error	► 5E	This may occur when the drain pump is defective. This may occur due to frozen water. Check if there is any alien substance inside the draining pump. This may occur when the main PCB is defective.	• Check if there is any alien substance inside the draining pump motor. • Check the natural drain in the same manner. • Check if there are any incorrect connections or broken wires. • If the machine malfunctions intermittently when the wash tub water temperature is high, replace the pump. • If the motor stops due to the water being frozen in winter, remove the frozen water referring to the relevant repair procedures.	 Check the drain pump resistance. (Resistance : 13.5 ~ 16.5 Ω)
Communication Error	► AE	The signals between the sub and main PBAs are not sensed. Incorrect wire connections between the sub and main PBAs.	• Check the wire connections and terminal contacts between the sub and main PBAs. • Check for disconnected wires. • Check whether the sub PBA is short-circuited because of moisture. • If the main PBA's communication circuit is faulty, replace it.	-

Symptom	Error Code	Countermeasure	Troubleshooting Procedure	Measurement Picture
Door Error	▶ dE	This may occur when the door switch is defective. This may occur when the main PCB is defective.	• Check if a dE error occurs during the boiling course. • As this error occurs because the door is opened, close the door. • Since 120V power is connected, check if the power cord is disconnected or check the insulation status and repair it if necessary. • If the main PBA door detection circuit is defective, replace it.	 1. Check the resistance for Reed SW (Checking Part :White-Green Wire) - Resistance: Approx 0.2Ω between the terminals of Reed SW.
				 2. Check the resistance for Motor (Checking Part : Black-Brown Wire) - Resistance: 33Ω to 46Ω between the terminals of Motor.
	▶ dE1	The door lock switch unit is not inserted. The door lock switch unit is damaged. The wire is disconnected. The door lock switch unit is defective. This may occur due to a defect of the main PCB.	• Check whether the door lock switch unit is inserted. • Check whether the door lock switch unit is damaged. • Check the disconnection of the wire. • If the door lock switch unit is defective, replace it. • If the main PCB is defective, replace it.	 Lock  Unlock 3. Check the resistance for Lock/ Unlock Contact (Checking Part : Lock White-Red Wire Unlock White-Blue Wire) - Resistance: Resistance: Approx 0.2Ω between the terminals of Contact. Check the Door Lock/Unlock state.
Switch Error (Main Relay Error)	▶ bE2	The Power button is continually pressed. A button other than the Power button is continually pressed.	• Check whether either the Power switch or a tact switch is continually pressed. • Check whether the service PBA holding screws are fastened too tight. If they are fastened too tight, loosen them a little. • If the main PBA switching IC on/off error has occurred, replace the main PBA. • The “E2” error occurs if the main relay connections are incorrect. Check the connections. If there is no error in the connections, replace the main PBA.	 Check the contact between the control panel buttons and their corresponding tact switch. - There must be a gap between a control panel button and its corresponding micro switch. Otherwise, an error occurs after approx. 30 seconds has passed.

Symptom	Error Code	Countermeasure	Troubleshooting Procedure	Measurement Picture
Water Leakage Error	► LE	This may occur when an alien substance is in the DV Case. This may occur due to a defect of the product's internal hose or from the part assembly.	• Since this occurs when an alien substance is in the Draining Bellows, for natural draining, remove the alien substance. • If the drain motor is defective, replace the motor. • Check if the water leaks from the tub connection part.	 Check if there is any alien substance in the Draining Bellows. Check if there is any alien substance such as underwear wire, coins, etc.
Unbalance Error	► UE	This may occur due to the laundry being unevenly distributed.	• Check the laundry type and check if the laundry load is unbalanced. - Make sure to check if there is any laundry present that absorbs a lot of water even if its volume is small and explain the problem comprehensively, if necessary.	-
Mems PBA Detected	► 8E ► 8E1 ► 8E2	This may occur due to disconnection. This may occur when the Mems PBA is defective.	• Check wire connections. • Replace the Mems PBA. • Replace Mems PBA because of the main PBA wire disconnection error or PBA silver nano part malfunction.	
Overflow Error	► OE	This may occur when the water level sensor is defective. This may occur when water is supplied continuously due to freezing or foreign materials in the water supply valve.	• The water level sensor is replaced.	

4-3. THE INSTALLATION FOR LEVELING

Problem Type	Causes	Corrective Actions
If the rear level of the floor is lower than the front level of the floor, it can't be leveled.  	• Only use the front legs to adjust the level.	• Use the leg supports to adjust the level of the rear. • If the floor is on a steeply slope, please use the additional leg supports. • Customer can purchase the leg supports from a service center.

5. PCB DIAGRAM

5-1. MAIN PCB

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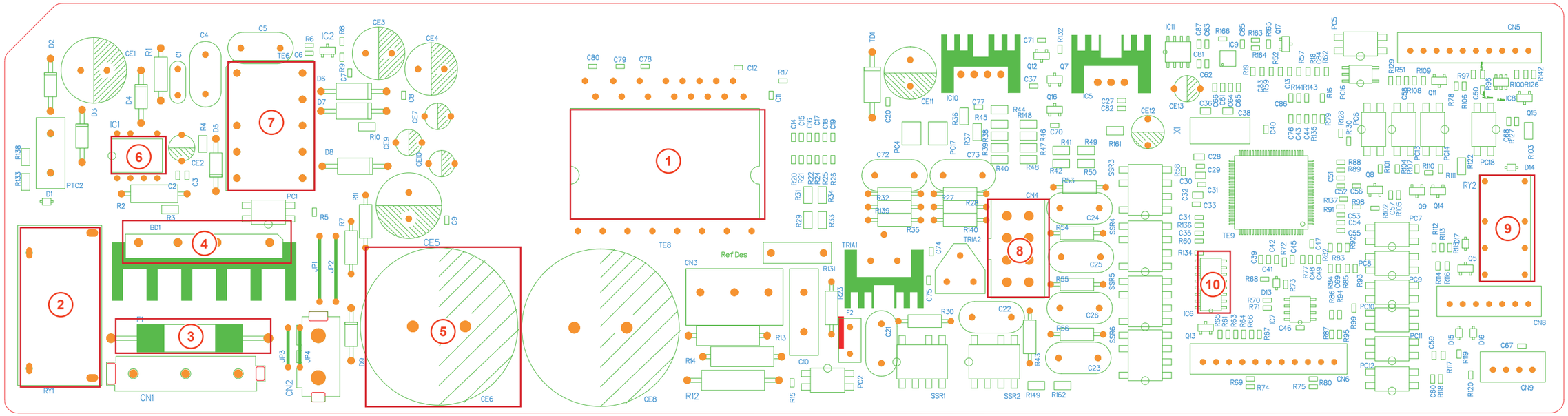

Location	Part No.	Function	Description
1	TE8	Motor Control	Control to Motor
2	RY1	Main Relay	Main Power Relay
3	F1	FUSE	Limit the Over-Current
4	BD1	Making DC Voltage	It works to Change the AC to the DC
5	CE6	Charging Voltage	Charge the DC LINK (300V)

Location	Part No.	Function	Description
6	IC1	Switching IC	Making a stable DC
7	TE6	Trans Circuit	Chopping the DC Link
8	SSR1~6 TRIAC1~2	Load Control	Turn ON/Off the Load(Valve etc.)
9	Q5,RY2	Door Lock Switch Driving Circuit	• Drive the Door Lock Switch • Toggle CW/CCW
10	IC6	Driving Circuit	Drive the SSR or Relay • Supply the Current to the Acting Current

5-2. DETAILED MANUAL FOR CONNECTOR AND RELAY TERMINAL PART - MAIN PCB

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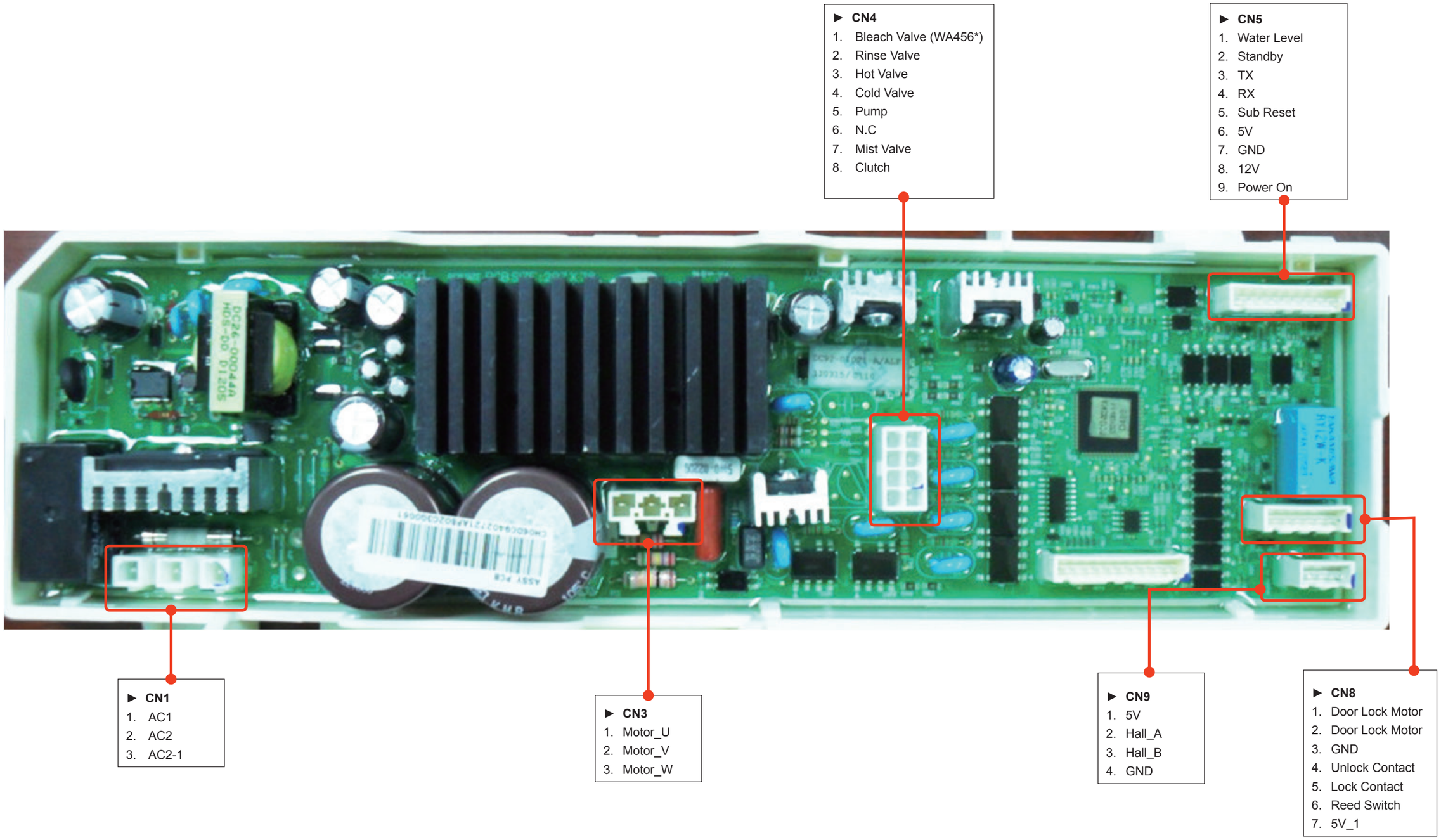

5-3. SUB PCB

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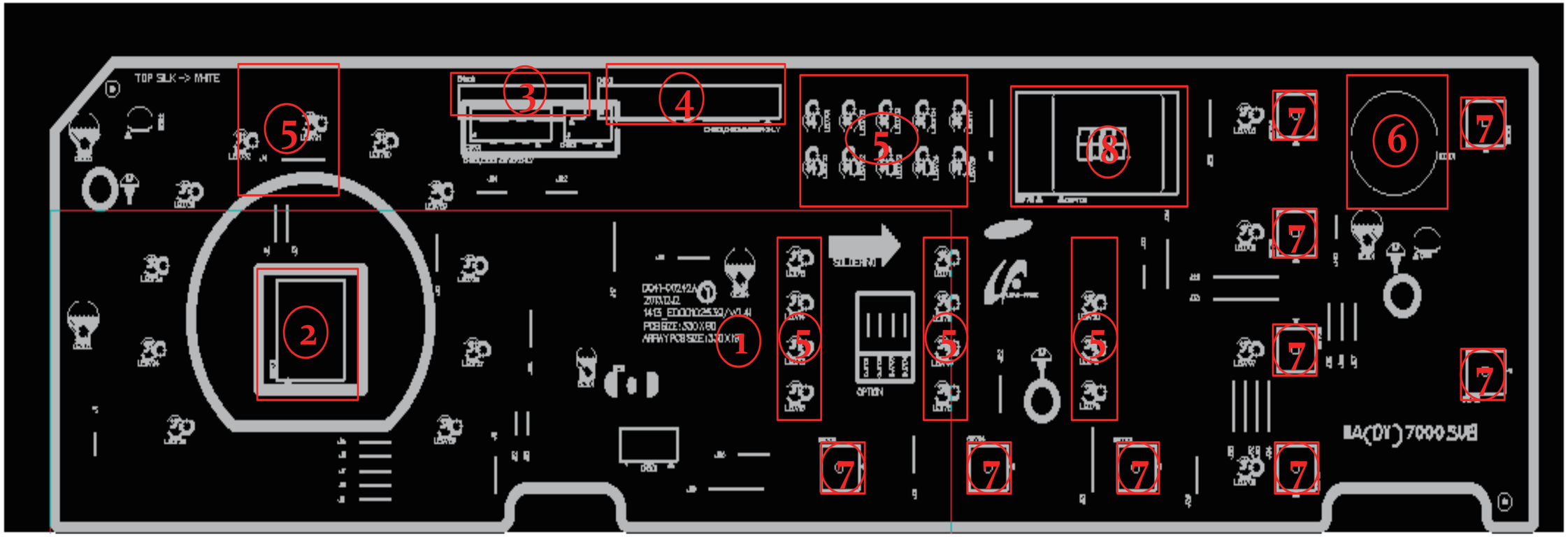

Location	Part No.	Function	Description
1	Micom201	Control Function	Control Key and LED Function
2	SW601	Jog Dial	Jog Dial
3	CN802	Wash Communication Part	Connect wash Main PBA
4	CN501	Conecting Sensing Part	Connecting Thermistor, cluch, Water Lavel and Mems Sensor
5	LED	LED Lamp	Display Function
6	BZ601	Buzzer	Making a sound
7	SW701~SW708,SW201	Switch	Operating or changing Function
8	DSP701	LED Display	Display Funciton

5-4. DETAILED MANUAL FOR CONNECTOR TERMINAL PART - SUB PCB

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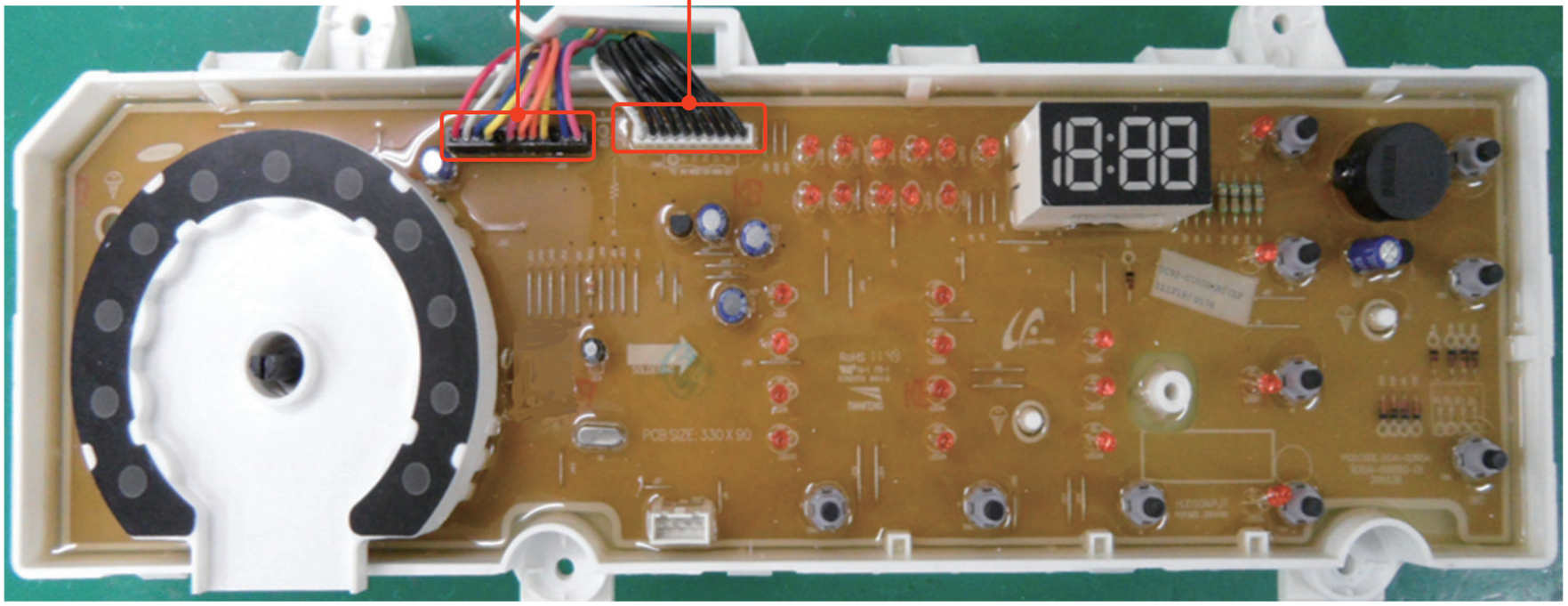
► **CN802**
1. CLUTH
2. WL_MAIN
3. STANDBY
4. TX
5. RX
6. RESET
7. 5V
8. GND
9. 12V
10. POWER_ON

► **CN501**
1. 3.3
2. SPC_1
3. SDI_1
4. SDO_1
5. GND
6. CS1_1
7. GND
8. WATER_THERM
9. CLUTCH_SEN
10. WATER_SEN1
11. WATER_SEN2
12. 5V
13. CLUTCH
14.
15. GND



6. WIRING DIAGRAM

6-1. WIRING DIAGRAM

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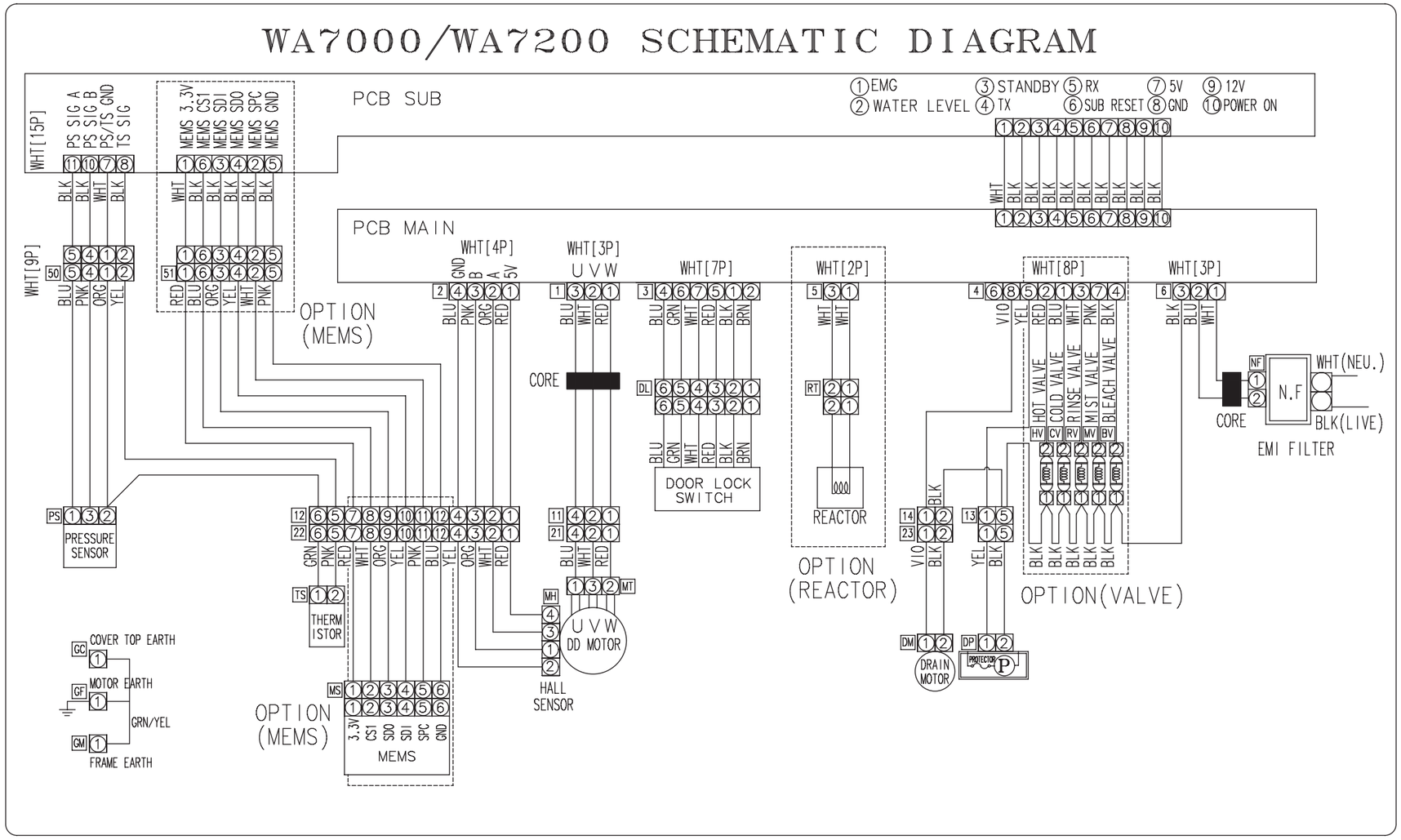
●REFERENCE INFORMATION

BLK	BLACK
BLU	BLUE
GRN	GREEN
GRY	GRAY
NTR	NATURAL
ORG	ORANGE
PNK	PINK
RED	RED
SKYBLU	SKYBLUE
VIO	VIOLET
WHT	WHITE
YEL	YELLOW



7-1. MODEL NUMBER NAMING RULES

①		②		③	④				⑤			⑥	
Product Type		Capacity		Intro. Year	Series	Feature logic			Intro. Region. or TYPE	Color		Buyer	
					Grade	1st Feature	2nd Feature	3rd Feature					
W	A	4	5	H	7	2	0	0	A	P	/	A	2

① **Product type (CAN NOT CHANGE)** : Auto Washing machine (SAMSUNG' s Guide Line)

② **Market Claim Capacity** : 4.8 cu.ft=48
4.5 cu.ft=45

③ **Feature Code** : F – Intro.Year: 2013
H – Intro.Year: 2014
J – Intro.Year: 2015
A – Project First launching region:N.America

④ **Feature logic** : 7 – Grade: High
2 : Better/Hot-Cold water
0 : Inverter Motor,Drain Pump
0 : STS Pulsator

⑤ **Color** : A – N.America
P – INOX

⑥ **Buyer** : A2 : USA

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22 JAN. 2014